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ABSTRACT

This paper attempts to point out the origins of and rationale for increased vocationalization of education in Trinidad and Tobago. It also seeks to examine the proposed models for future vocationalizing and points out that various components of these models have been tried elsewhere before. Third, it examines some evaluation studies attempted recently. These recent studies, given their limitations, tend to show that vocationalization has had some success--though questionable. The paper then touches on an alternative model that would ensure that vocational education is pursued as a complement to general education. Finally, the paper shows the need for evaluation studies and concludes that whatever the strengths and/or weaknesses of secondary vocational education, it will be prevalent for the foreseeable future. (KC)

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THRUSTS IN VOCATIONAL SECONDARY EDUCATION IN TRINIDAD AND TOBAGO AND THE NEED FOR EVALUATION STUDIES

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Thrusts In Vocational Secondary Education in Trinidad and Tobago and The Need for Evaluation Studies

Maurice Chin-Aleong

Over the past two decades vocational secondary education has become an exceptionally outstanding educational reform movement. This has been so in both developed and developing countries. However, the thrust in vocational secondary education has been more pronounced in the developing countries.

The protagonists for the movement for the diversification of the secondary school curriculum have been crusading for some time now. Their obvious reason was and still is to vocationalise education. These crusaders contend that general secondary education has a poor track record for preparing students for the world of work. They argue that by using various models and orientations, the objectives of vocational education could be accomplished. Among these models are:

i) An information exchange between school and the world of work.

ii) An alternation between school and work, including an exchange of personnel; and

iii) An integration of school and work.

This paper attempts to point out the origins and rationale for vocationalisation in Trinidad and Tobago. It also seeks to examine the proposed models for future vocationalising and points out that various components of these models have been tried elsewhere before. Thirdly, it examines some evaluation studies attempted recently. These recent studies, given their limitations, tend to show that diversification has had some success - though questionable. The paper then touches on an alternative model which would ensure that vocational education is pursued as a complement to general education. Finally,the paper shows the need for evaluation studies and concludes that whatever are the strengths and/or weaknesses of secondary vocational education it will be with us for the forseeable future.

Origins, rationale and Delivery Systems

The call for vacational education in the British Caribbean is by no means new. Throughout the twentieth century political leaders and educators had contended that vocationalising education was the correct means of promoting national development. The general argument runs that in the past academic education failed to encourage people, who did not gain white collar employment, to lead productive lives. That it gave people false aspirations and created contempt for trades, crafts, manual and agricultural work. The solution therefore was a reorientation of the curriculum. 1

Attempts to vocationalise secondary education in Trinidad and Tobago came in three waves. The first phase occurred in the late 1950s and early 1960s, through the establishment of secondary modern schools. The idea behind these schools was to move away from the orientation of the fully loaded academic programme and to offer such practical subjects as Typing, Home Economics, Woodwork etc. The second phase took place in the 1960s and early 1970s. This period witnessed the development of a fifteen year education plan (1968-1983). This plan proposed a two tier secondary structure comprising junior secondary (forms 1 - 111, in which Industrial Arts and Home Economics were compulsory) and Senior Secondary (forms iv-v or vi) schools. At the senior secondary, it was proposed to offer "basic disciplines and scientific education on the basis of which the employer would build his specific job training rather than the specific training at school."2 Students who did quality for the second cycle of secondary education would go to Trade and Farm schools and youth camps. The third phase or great thrust started in 1975.

The principal rationale for the great thrust into Technical/Vocational education, in Trinidad and Tobago, rests on the notion that the kinds of jobs necessary for modern development, and created by high technology, require specialized skills. Furthermore, these specialised skills can best be taught and delivered to the labour market by way of formal programmes developed and pursued at secondary and post secondary schools. This view holds, that vocational education in addition to being beneficial to the individual (in the form of enhanced employment prospects and earnings) also develops the country as a whole. This development is realised through a more productive workforce and therefore a higher gross National Product.

Technical/vocational education had been advocated as the vehicle through which through the manpower requirements of the country could be attained. That is to say, that it was and to a large extent still is, considered as the solution to the dual problem of unemployment (mainly among the young and unskilled) and the projected occupational structure of the labour force necessary for industrialisation. In 1975, in an address to the Caribbean Union College, the Prime Minister sought to show the need for more technical vocational graduates and therefore a new type of school.

He noted that a comparison of 1968 estimates and 1973 targets showed a shortfall in the professional, technical and craftsman areas but a surplus of applicants in the clerical and sales areas. He further noted that those shortfalls would be exacerbated by the demands of industrialisation around the planned petroleum based heavy industries. The response to this situation was the proposal that both academic and vocational courses (specialised training) be pursued under one roof and under common management (Diversified Curriculum Comprehensive Schools). Three models for the delivery of vocational education therefore now exist. These fit into what has been identified as Non Formal, Parallel Vocationalised and Components of a Core Curriculum systems.3

In drawing up the rational and guidelines for a System of Diversified Curriculum of secondary education in Trinidad and Tobago, the Prime Minister emphasised:

> ".... it must be realised and accepted that any Education plan for Trinidad and Tobago must have one of its prime goals, the preparation of our citizens for suitable employment opportunities. The majority of citizens leaving the Secondary Education system seek either immediate employment or further education at some higher level. The majority belong to the former group.

Whereas in the past the certainly during the preparation of the draft Education Plan, the opportunities that were available were not very clearly defined and a general sort of education in the traditional sense was as good as any other, circumstances in Trinidad and Tobago have changed and a clearer picture is now emerging. Various studies have shown that from any country involved in heavy industrial development, the requirements for personnel can be broken down, generally, in the following categories:

10 - 15% - Professional
15 - 20% - Sub Professionals and technicians
60 - 70% - Persons with general training but with definite exposure to the sicneces
10 - 15% - Skilled craftsmen4

In particular the following proposals were made:

"i) That the norm for secondary education be a period of at least five years.

ii) .....

iii) That the concept of programmes in specialised craft training done in isolation in Government controlled vocational schools be rejected.

iv) That technology in all its aspects be given a priority position in any modification of the Education Plan.

v) That an integrated comprehensive programme embracing the traditional academic, pre-technician, commercial, general industrial, and limited specialised craft-training, utilizing common 'facilities' and with common management be adopted as the national model for 14-plus education. This model should be the basis for the planning of all future facilities.

vi) .....

vii) Denominational Boards which accepted the National Model would be funded 100% for construction and equipment costs in conforming with the National Model."5

Thus the national model for secondary education in Trinidad and Tobago was the diversified curriculum model in which the planners sought to implement a parallel vocationalised system. That is, a technical/vocational track which runs parallel to the dominant academic model - all under one roof. This model as claimed elsewhere was directed towards the creation of manpower for socio-economic growth, to stem the tide of too much growth in the interest of academic work, and the need for intermediate skills for direct entry to the labour force. It would appear that the parallel vocationalised system is based on the assumption that general and technical/vocational education are substitutes of each other. It fails to understand that vocational studies are built on and around bodies of theories. Therefore vocational studies are best taught on a proper foundation of general education. 6

An examination of the various systems of vocational education, shows that one might speak of pre vocational secondary education, secondary vocational and post secondary vocational education. The first nomally refers to an orientation and information about "skills clusters", generally Industrial Arts and Home Economics. The second refers to courses provided in schools for the development and certification of particular skills which will afford young people direct entry into the labour force.

The third refers to development and certification of particular skills at ordinary and advanced levels. These skills are learned however on the foundation of a secondary education and on a body of theory.

No one has any quarrel whatsoever with the first or third. It is generally the second i.e. secondary vocational education which provide the arena for contention. The argument is - schools are simply not equipped to fit people neatly into jobs that require specialised skills or to assist in alleviating the unemployment problems by creating self employment.7 In particular, secondary vocational education require students at an early age (14+) to select a craft subject which the student would pursue as his/her vocation. It was in addressing the matter of early specialisation that the Cabinet of the Country appointed a Committee in 1982 to examine the Content, Organisation and Administration of Technical/Vocational Education in Secondary Schools.

The Committee submitted its report in 1984. It emphasised that it was not in support of early specialisation in skill training for direct entry to the labour market. The Committee recommended the teaching of a set of skills related to a particular job (skills clusters) strongly supported by the normal general academic programme,that is to say the "Components of a core curriculum", was advocated. This model recommends pre vocational work rather than the production of job skills for direct entry into the labour market. Prevocational therefore, becomes a compulsory component among the other component of the curriculum. In the absence of a Cost Benefit/Effectiveness analysis the committee looked at the comparative costs of salaries for the upkeep of the technical vocational and academic tracks. The cost of salaries for vocational education was found to be extraordinarily high.8 This is partly due to the wide range of vocational subjects offered at the comprehensive schools:

GENERAL COURSES (J.S.S.)

1. Industrial Arts
2. Home Economics
3. Agricultural Science

SPECIALISED CRAFTS

1. Auto Mechanics
2. Machine Shop
3. Electrical Installation
4. Welding
5. Masonry
6. Construction Carpentry
7. Nurse's Aide
8. Plumbing
9. Air Conditioning
10. Domestic Electronics
11. Dressmaking and Design
12. Tailoring
13. Food Preparation
14. Clerk/Typist
15. Shorthand/Typist
16. Housekeepers' Craft
17. Agriculture Craft
18. Beauty Culture

PRE-TECHNICIAN COURSES

1. General Electricity
2. General Draughting
3. Metal Work/Metals
4. Woods/Woodwork
5. Principles of Accounts
6. Principles of Business
7. Food and Nutrition
9. Fashion and Fabrics
8. Clothing and Textiles
11. Typewriting
10. Surveying
13. Office Procedure
12. Shorthand
14. Agricultural Science

However, there appears to be sustained interest in the vocationalisation of Education in Trinidad and Tobago. In this context though, a more rational approach of training in "skills clusters" is recommended. Also the approach to a more judicial mix of academic and vocational is now being considered. The Draft Plan for Educational Development in the country (1985 - 1990) is dominated by Technical/Vocational education and training with some new orientations and models. These orientations embrace programmes from diversifying the curriculum to On-the-job training schemes, sandwich courses and life long programmes, in collaboration with employers. It is useful to note that such plans include payment to firms in one form or the other.

The statistics on public secondary education show that out of a secondary school population of 92,000, sixty one thousand (61,000) attend schools with diversified curriculum.. That is to say that two thirds of public secondary school students attend shcools in which vocational education is taught. The education plan (1985-1990) proposes that over the five year period schools which do not now have vocational subjects on their curriculum should begin to offer suitable vocational subjects, that is, subjects appropriate to their structure and location. The plan itself has implicitly stated its orientations to vocationalising. 9

Methods of Vocationalising

An examination of the plan for educational development in Trinidad and Tobago (1985-1990) reveals three basic orientations or methods for vocationalising. These might be identified as: An Information Exchange; an alternation of work and school (including an exchange of personnel); and An Integration of School and Work.

(a) Information Exchange: The central idea of this orientation is that there should be a mutual exchange of information between schoolers, would be workers and industry. This is based on the premise that given

available.....b

available jobs in the labour market, people will make their skills available to capture returns for these skills if they know all about these jobs skills requirements and the demands of the communities. Teachers too will need to understand how things are done in industries. On the other hand industries must be informed of school programmes and approaches.

The problem with the information exchange is that the situation is dynamic and the lead time necessary for the acquisition of skills makes it necessary that rapid and timely information be always available. The danger of narrow specialisation becomes evident. Upon successful completion of training programmes the demand for certain skills could be drastically altered. Since narrow specilisation is more likely to suffer from employment with shifts in the employment pattern, the argument for training in "skills cluster" is now in vogue. Indeed there is much truth in the proposition that general education tend to make people trainable, whereas specialised training develops a person, trained in a specific area. Moreover, information normally gained from labour market studies generally indicate supply and demand. They hardly ever indicate the intricacies about the intermediate steps between training for a job, actually obtaining a job and promotions. The strength of the information orientation is that it will tend to eliminate wastage and oversupply of particulars skills. It is evident that an Information exchange programme will call for strong communication links between industry and the education system, and the maintenance of a data base. This would obviously be additional expenditure, thereby making the present vocationalising programme more expensive. Figures show that a school with a diversified programme of 1350 students had in 1985, a recurrent expenditure for teachers salaries only (excluding such grants for equipment and materials) of $5,274,096 i.e. $3,907 per pupil, while in a large traditional grammar school of 1100 students annual salaries alone amounted to $2,846,921 i.e. a per pupil cost of $2,588.
But this is only a slight indication, only a proper cost analysis and evaluation will tell whether the benefits are worthwhile in relation to the costs.

(b) <u>Alternation between School and Work:</u> The argument here is that students are not learning how to work. That in order to train students properly for work, it is necessary to co-operate with industry. Since employers know best what they want, then they should assist in the direction and formation of programmes. This system is best implemented by an exchange of personnel between education and firms.

For example, people from industry will be requested to do some lecturing or teaching and/or assist in the setting up of programme courses, while teachers will be asked to spend sometime in industries to become acquainted with their actual schedules.

In this system sandwich courses should be a common feature. Courses will be pursued by day release or block release systems. Moreover, it is anticipated that firms will be requested to provide short or medium term on-the-job training and apprenticeship programmes. It is further proposed that firms will be paid by tax rebates or otherwise for expenses incurred in the training of students and apprentices. The plan summarises this situation as:

> "An adequate and stable source of funds is necessary to implement a comprehensive National Training Plan. Direct or indirect funding is necessary to elicit the participation of industry as partners in the training enterprise. Financing is also necessary to provide the support services such as monitoring the performance of the system, data collection and management and materials development, among others. The portion of the unemployment levy that was intended for training should be utilized to support this training plan. Financial arrangements such as those which have been successfully implemented in other countries can be explored. Tax rebate policies and duty free and tax relief concessions can form an overall package of incentives for firms to participate in the national training enterprise. In some circumstances, however, it may be necessary for the government to provide direct funding to private firms through a subcontracting arrangement so that the facilities of these firms can be used to provide up-to-date on site training. A variety of other cost-sharing arrangements can be explored; but the end result is that firms will see it as beneficial to participate in the training system". 10

No doubt firms would see this as beneficial to them. Most economists have already pointed out that in such situations firms are doubly paid. In the first instance trainees are paid less than their productivity and secondly by being directly compensated for offering training.11 An indepth cost analysis in this respect is required. In fact many claim that firms often indulge in on-the-job training programmes to obtain cheap un-skilled and semi-skilled labour in the process of training. Such training, it is argued, is seldom done in a formal setting in the firm, but rather learners are attached to experienced workers as helpers. The firm is even happier when it paid for this.

There are benefits to be derived from the "alternation" model. It would provide practical approaches while still at school. Work itself deals with the cognitive and affective domains and not merely labour. These aspects, all agree, have as much to do with output as skills themselves.12 The technical aspect of the "alternation" orientation is to define the correct mix of school and work. Moreover, if the programme is to be sustained it must be backed by a strategy for generating employment.

(c) Integration of School and Work: . In this model there is no distinction between school and work. The workplace is simulated in school.

The introduction of such programmes are justified under the rhetoric of rationale for all similar programmes:

(i) to develop proper work attitudes;

(ii) to remove the distinction between mental and manual work;

(iii) to stress the importance of punctuality and regularity; etc.

School programmes are organised along the lines of the firm. They produce goods and services for sale and the funds thereby gained are used for the upkeep of the programmes. Therefore the greater the productivity of the school the more resources will be ploughed back into and made available to the school (although the school will still be maintained by government).

The idea of the integration between school and work has already been put to the test, generally by command economies and developing countries. Varying degrees of success and failure have been reported. Arnove (1977) in reporting on the China case observed that the Chinese citizens saw the programme as a "mobility trap". In the British Caribbean itself in Zennings - Gray (1982), Teape noted that the programme did not enhance the job projects of its graduates. Moreover, since most of the programmes have been attempted by socialist countries it ought to be noted that private employers may not necessarily require the identical traits and characteristics from workers as do governments. All this must be seen against the argument:

(i) that most jobs do not really require specialised skills

(ii) employment and productivity are not necessarily related to the distribution of resources.

If all what is done at work is to be done at school the argument will present an omnibus for subjects to be included in the school curriculum. Strong cases could be made for the inclusion of almost any subject in the school curriculum e.g. Driving. Furthermore, if the school is to replicate all that is actually done at work there is the risk of the school becoming boring (e.g. student alienation) and ruthless in spirit and ideals. These are supposed to be the exact opposite of the ideals of schooling.

/ Schooling stresses the development of citizens who are not only influenced by the profit motive but those who serve the good of the community and their country.

Finally, the idea of an integration between school and work is the basis for lifelong education. It is contended that workers are in constant need of having to upgrade their skills and very often to reorient their skills to new situations mainly because of rapidly changing technology. Workers should therefore return to school ever so often. But what better place could one upgrade one's skills than on the job? What is obvious is, any system which must simulate the workplace, and train and retrain people is expensive (income forgone etc.) Such a system would require policy makers to develop methods and methodologies for analysis of costs, benefits and effectiveness.

Two aspects of the "integrated" model need to be examined. The first is: could the school really simulate the rhythm of the workplace? The second is that, like the "alternation" model the integration model would need the support of a strategy for creating employment.

Classroom orientations

With respect to skills acquired in school, the plan proposes to allow students to pursue both specialised craft and academic programmes at secondary school graduation level. That is to say, students would be encouraged to offer simultaneously an examination which would certify them as being a competent craftsman (National Examinations Council Craft Certificate) and the normal G.C.E. (or C.X.C) O'Level examinations. Already some concerned have predicted tragedy in this move, since they have pointed out that the failure rates of the National Examinations Council Craft Certificate are already alarmingly high. They claim, to add now general academic oriented courses to this workload should spread the ability of the students too thin. The idea behind this proposition is to enable the student to pursue both technical/vocational and academic studies as he/she pursues a career path.

It has been strongly contended that the mix of academic and vocational leads to the development of a "general" curriculum (belonging to neither vocational nor academic) and wherever this type of curriculum has been established the results are notorious.14 A second approach is to pursue a group or cluster of related skills leading to the Craftsman Diploma in selected technical fields - a cluster programme to provide basic knowledge in predetermined skill clusters, and a programme of technology studies as part of the general curriculum to promote the technological literacy of students.

Somehow these propositions appear to be intuitively correct. However only evaluation studies will tell whether intuition should be the guiding light.

Some results of previous studies and the case for evaluation

Trinidad and Tobago witnessed its first batch of comprehensive school (Diversified) graduates in 1977. Several cohorts are now in the labour market and studies relating to the extent that diversification has fulfilled its stated objectives would indicate whether or not the education system is on correct course.

Evidence to date is not fully conclusive to justify action of reorientation or consolidation of programmes but they are worth mentioning. Between September 1982 and August 1983 the National Training Board conducted a follow-up survey of graduates from comprehensive schools.[15] Among the objectives was to focus on graduates of specialised crafts programmes. "The concerns were:

1. Were they finding jobs which ware related to their training?
2. Were they more quickly absorbed into the labour market?
3. Were they better disposed than other graduates to find work?
4. Did they command higher initial salaries?
5. Were they more satisfied with their jobs."

A major concern was whether streaming (tracking) made a statistically significant difference in outcomes outlined above.

A target sample of nine hundred was determined. A response of six hundred and fifteen was obtained from which six were usable questionnaires - a usable response of 67.6%. It is most important to note that the stipulation for responses was that they should have been in the labour market for at least one year. The obvious difficulty with this stipulation is that it allowed different cohort groups with different characteristics to participate. The result, therefore, must be somewhat "blurred". Still the results should be addressed. It is now more than evident that similar work using a single cohort would be useful.

It would be helpful to look at four areas; salaries of graduates by track (students are grouped into three tracks viz, academic, pre technician and specialized craft), time taken to find first full time job, job satisfaction, job preparation.

The study showed also that specialised Craft Students fared better than the other graduates in all areas.

Table (1) below shows that graduates who gained specialised skills had a mean monthly earnings of $634, for the academics it was $614.and for the pre-technicians $624.

TABLE I

Average Monthly Salaries of Graduates by Sex and Stream (in TT Dollars)

Stream	Sex								
	Male			Female			All Cases		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
Pre-Technician	$687	364	63	$547	261	51	$624	328	114
Academic	605	299	27	620	371	40	614	341	67
Specialized	644	419	165	577	264	31	634	399	196

Source: Project Concern, Ministry of Education

Table (2) shows that the specialised craft graduate took a slightly less period of time to obtain his/her first job. However the mean time for the academic was the same as the overall mean. In terms of job satisfaction Table (3) shows that again on the average the specialised craft graduate was more satisfied with his job. But then again the mean grading was almost the same as the academic. When preparation for job is examined the craft graduate is reported to be better prepared for work. However as in the case of job satisfaction, the other groups approximates the mean.

A major finding of this work also is that in the specialized craft areas, employers were not concerned about credentials.

This is important if only for one reason - time of the survey.

Major caveats are important in analysing the data:

(i) at the time of survey the responding graduating would have been reflecting the events of a boom period (1974-83)

(ii) there is the assumption that all students of the senior comprehensives are the same in intellegence and attainment. Students attend these schools on the basis of the Common Entrance Examination and range from approximately the 16th - 75th percentile.

It is known that Trinidad and Tobago enjoyed a boom period (1974-83) with the increase in petroleum prices in 1973. During that period the construction industry was totally saturated. It was often reported that labour and materials were in excessive demand. It was generally stated that the construction industry, which caters for most craftsmen, could not cope with the demands. It is not strange therefore that with the great demand for skilled craftsmen, employers would have turned a blind eye to certification and experience.

What is surprising is that the performance of the specialised graduates was not better.

But even with accepting the results of the study, a different flavour added when it is studied in relation to costs.

Table 2

Time Taken (in Months) to Find the First Full-Time Job (By Stream)

Stream	Mean	SD	No. of Cases
Pre-technician	12.5	9.1	123
Academic	9.6	8.2	71
Specialised Crafts	7.9	8.4	208
All Cases	9.6	8.8	402

Table 3

Mean Job-Satisfaction by Stream

Stream	Mean	SD	No. N
Pre-technician	2.37	.88	119
Academic	2.26	.75	71
Specialized Craft	2.07	.85	203
All Streams	2.20	.85	393

* Scale - 1 = Very Satisfied
2 = Satisfied
3 = Dissatisfied
4 = Very Dissatisfied

Table 4

Mean Preparedness * by Stream

Stream	Mean	SD	N
Pre-technician	2.63	.89	114
Academic	2.64	.91	70
Specialized Crafts	2.37	.93	199
All Streams	2.50	.92	383

*Scale: 1 - Excellent Preparation
2 - Good Preparation
3 - Fair Preparation
4 - Poor Preparation

Source: Project Concern, Ministry of Education

When these results are seen in relation to work done by a Cabinet appointed Committee in 1982, to look into secondary vocational education, new light is thrown on the matter. Table (5) below reinforces the notion that technical/vocational education is expensive. Its very nature includes heavy capital and substantial recurring costs. According to Table (5) the costs in terms of teachers' salaries (using 1982 figures) for training a technical/vocational student is $3,233 while that for an academic student is $3,110. Moreover, the cost for a successful specialised craft graduate is $83, 684 while that of a successful O'Level graduate is $14,150. A glance at the costs in terms of teachers salaries and initial salaries of graduates, casts doubt on the profitability of 'specialised skills' graduates. More work on longitudinal studies to show whether or not salaries diverge and to what extent, would go a long way for policy decision.

Table 5: Cost per Successful Technical/Vocational Secondary School Student

Technical/Vocational Programme	Total Cost	No of Passes	Cost per Student
National Examinations Councils			
i. Pre-Technician Level	$ 612,670.00	28 (197)	$21,881.07
ii. Specialised Craft	$8,201,070.00	95 (2,527)	$83,684.38 (3,233)
External Examinations			
i. G.C.E. O'Level	$53,274,300.00	3765 (17,130)	$14,149.88 (3,110)
Regional Examinations			
Pre-Technician Level			
i. General	$28,123,730.00	9043 (2217)	$12,685,48
ii. Basis	$16,766,010.00	1938 (5391)	$ 8,651.19

( ) Indicates no examined and cost per number examined.

Regional examinations refer to the Caribbean Examination Council (CXC). They are structured along the lines of the British O'Levels and CSE.

Source: Max Richard's Report

Recent figures and general indications of the labour market indicate new trends. There is now rising unemployment. The situation is that the unemployment rate is now 15% and the 15 - 18 year group accounts for 55% of all unemployment (News Bulletin). The wages of skilled craftsmen and tradesmen have fallen within recent times, while that of the white collar worker (academic graduate) have remained the same over the identical period. Appendix I shows that for the first half of 1984, unemployment was lowest for people with Secondary School Certificates and University Degrees. Appendix 2 shows that in the same period umemployment was higher for craftsmen and construction workers than for clerical workers.

The trend of increasing costs for the maintenance of diversified school is obvious when compared with other schools. Statistics on salaries for secondary schools in the year 1985 indicate that a normal Senior Comprehensive is almost twice as expensive a traditional grammar school of similar size. See Table (6) below.

Table 6: Comparison of salaries of four schools (1985)

School Type	No. of Staff	Enrollment	Salaries
Senior Comprehensive	100	1363	5,274,096
Junior Secondary	63	1672	3,376,774
Traditional Secondary (in which some vocational education is offered)	44	742	2,393,329
Traditional Grammar School	58	1111	2,846,921

But what of other aspects as job relatedness with respect to skills acquired at school? Vocational maturity? In the work referred to earlier nearly 50% of the specialised craft graduates reported that they did not consider what they learnt at school closely related or related at all to what they had to do on the job. The study also showed the senior comprehensive was not the place to begin specialisation. These sets of information are useful but as has been mentioned earlier a host of additional data is now imperative. Towards this end cost analyses and other evaluation projects should be attempted.

It has been observed that vocational education is expensive both in terms of capital and recurrent costs. Literature on vocational education has shown that in the past these programmes have failed for a host of reasons: lack of competent teachers, lack of social acceptance of vocational education, inertia of the education system, etc.16 Over the past two decades there has been a great thrust in Diversified Secondary Curriculum Schooling.

The fact that resources are scarce and decision makers must make choices among alternative ways of achieving given ends, they must examine the strengths and weaknesses of programmes before making proper decisions. It is in attempting to do this that cost analysis in education proves to be a ready and useful tool. Two types of cost analysis have figured prominently in the education industry— Cost Benefit Analysis (CBA) and Cost Effectiveness Analysis (CEA).

Given the limitations and arguments against the use of Cost - Benefit or Rare of Return. Analysis such as:

i) Cost Benefit analysis indicates past trends between supply and demand and not future events.

ii) Cost Benefit Analysis tells us where to invest but not in what quantity, etc.

Yet Cost Benefit Analysis in conjunction with other indicators is extremely useful. Its main strength is that it combines in a convenient form information on the costs of different kinds of education, together with information about the balance between supply and demand for different types of education and the relative wages for different types of skills. One general argument is that while cost Benefit Analysis does not tell us about future conditions and likelihood for profitability it does indicate whether we have been right in the past. On the other hand CEA has many attributes. Its efficacy in the education sector lies in its appropriateness to programmes with multiple objectives all of which need not be expressed in a single unit or monetary terms. 17

The use of cost analysis becomes even more urgent when one considers that the Education Plan (1985-1990) recommends diversification of the entire system. Any comprehensive evaluation of the diversification programme will have to include both types of analyses. In this manner evaluation exercise will examine both external and internal efficiencies. But even so, studies to indicate much more than streams of enhanced earnings and employment will be required. There is need for indicators relating to increases in cognitive areas, development of entrepreneurial skills, changes in attitudes with respect to employment, ability to market skills, tendency towards acquiring more knowledge (schooling), teachers' ability, elimination of sexual stereotyping of jobs, job satisfaction, vocational maturity etc.
Most of all there is always need to evaluate alternative means for achieving intermediate and long range objectives.

Alternative Model

Few will oppose the inclusion of pre vocational or "cluster of skills" approaches. Comprehensive schools could be arranged without being dominated by the notions of manpower requirements and at the same time vocational education could be treated ordinarily. That is to say that along side the academic subjects there could be broad workshop courses. To ensure an appropriate secondary education for all it is suggested a core curriculum of twenty-four (24) subjects with nine (9) electives.

This means a maximum of nine periods for specialised crafts which should be grouped in clusters. This mix should ensure that students are able to continue general programmes with an orientation to workshop courses

Conclusion

Technical/vocational education is a recurrent theme. Somehow during the 1970 s it was in low profile. This is most likely because it was then travelling in the guise of diversification. Diversification has been recognised for what it is and is now open to question. Almost all, if not all developing countries have implemented programmes of Diversification of Secondary School curricula. The reasons and objectives for the establishment of Diversification have been generally the same throughout the developing world. Among these are:

1) To bridge the gap between school and work;
2) To develop an egalitarian society by educating all under one roof;
3) To produce the skills needed by industry for development.
4) To implement curricula suitable to aptitude age and ability of the various young citizens etc.

These notions are by no means new. They were expressed by economists and educators before and immediately after independence. Research work on Technical Vocational education and employment in developing countries have been attempted before. These works have highlighted the fact that education is often given a role which by itself could do little in terms of employment and national development.18

The Diversification programme has now been in train for over twenty years. Its roots now span the African and Asian Continents and Latin America and the Caribbean. In particular, the programme has been implemented in Trinidad and Tobago since 1975. Its graduates now have had several years exposure to the labour market and the society in general. The time for proper evaluation is now.

That there is sustained interest in Technical/Vocational education in Trinidad and Tobago is evident. The Draft Plan for Education Development in Trinidad and Tobago highlights this interest. Moreover, influencial people still talk of the great necessity of Technical/Vocational Education to produce the necessary linkages with labour force.

Close scrutiny of this plan identifies three models which are to be pursued:

i) An informational Exchange between industry and School;
ii) An alternation of school and work; and
iii) An integration of Work and School.

These models are not new. They have been proposed and some have been tried elsewhere. For example, in an article entitled "School and Work: a technique to help bridge the Gap" in the Educational Research (1982) it was stated:

"The argument for introducing a broad vocational orientation into the school curriculum is not new; but despite repeated exhortations to bridge the gap between school and employment, relatively little has been achieved. This is partly due to the lack of knowledge about the needs of industry among teachers who may never have worked in the industry themselves. Therefore, a first step towards introducing a broad vocational orientation into shcools is to make information about industry more readily available to teachers." 19 In other literature on the subject we have been told of the attempts to integrate school and work. 20 It has been reported that since the death of Mao in 1976 the integrated work and school programme has given way to emphasis on academic work. 21

However, whatever the failures or limited successes reported this should in no way discourage further evaluation.

Attempts so far, to determine the efficacy of the diversification of the Secondary curriculum in Trinidad and Tobago tend to show that the programme after all, might not be cost-effective. The sum total objectives are far from being attained. Lots of work still need to be done in this area.

There seems to be a very distinct patter in the development of Technical/ Vocational education. It would appear that in times of low demand for vocational skills industries are left to themselves to provide these. However, in times of economic boom and rapid industrial development schools are called upon to provide these required skills. In Trinidad and Tobago, in 1968, when the first Education Plan was proposed (and the GNP was low), it was suggested that a general orientation to vocational skills would be attempted in the secondary Schools. In 1975 when the GNP was high and government had proposed a programme of industrial and agricultural development, the schools were assigned the task of providing the necessary skills required. 1 Now in the latter half of the 1980s with falling oil prices and a slowing down of the economy, it is proposed againg that there should be co-operation between industry and school. In 1967 the GNP was $1,191.2m in 1968 it was $1,394.8m and in 1975 was $4,645.9m with the promise of steep and steady economic growth.

But there is still the sociological aspect of vocational education. It would still seem that most people have a high regard for academic (general) secondary education and low esteem for technical/vocational education. In Trinidad and Tobago, for instance, pupils are assigned to secondary schools on the basis of a National Common Entrance Examination at eleven plus. Pupils are allowed four choices of schools which they would like to attend, based on merit. It is well known that the top 15% of these students attend grammar schools. This is so because of citizens perception of education.

It would be of utmost importance to recognise recent works that have been done on workers' attitudes/characteristics in connection with the education/training - employment nexus. Much evidence now seem to point to the direction that while cognitive knowledge and skills are indeed important for economic development and employment, yet it is a bundle of characteristics which includes much of traits from the affective domain that figure so prominently in the education/training employment relationship.22 Indeed we have come to observe that as societies grow more advanced, there is an increased need for increase in technology and a flexible labour force. What this means is that the actual skills imparted in schools (apart from advanced literacy and numeracy) may be less important than the creation of attitudes and cognitive abilities which enable individuals to adjust to frequently changing job situations. 23
Indeed what has now been noted is that workers with low levels of schooling and those with work experience limited to a specific skill are at a disadvantage in the labour market when they are displaced. The point is that technology changes are rapidly taking place and it would seem that learning periods for specific trades are becoming shorter and while the modus operandi of various technologies change over so quickly. Technology generally has the tendency to lessen skills required for contemporary jobs. 24

With respect to the literature concerning the successes and failures of vocational education in enhancing employment prospects of secondary graduates, a review would show strong cases put forward by both proponents and opponents of secondary vocational education. Recently many have argued that failures in vocational education at the secondary level lie in the comprehensive school 25 system. They argue that specialized vocational education schools always do better. In particular with special reference to the United States, Weisberg (1983) has argued that the most widely accepted labour market studies projects the most rapid growth in services, finance and trade, the majority of new jobs created are expected to be in the areas of health services, computers, repair of business and industrial machines, banking, secretarial services and recreation.26

Employers in these areas will need strong general skills not job specific skills. Moreover, such job specific skills, when taught in a classroom are best taught at post secondary level and not in comprehensive high schools. Although it may be argued that this deals with the United States situation, the situation for Trinidad and Tobago need not be far off this mark.

Much could be said for the Diversified Secondary Curriculum. Indeed there is more than a semblance of truth in notion that school and work are related. However, there are good reasons to doubt whether diversification programme will ever be effective in enhancing school output, in solving unemployment, underemployment and workers dissatisfaction due to a mismatch between worker skills and job requirements because of school output are simply false prosecutions. While schools might be able to assist in training, schools cannot create jobs. The failure of the system is probably not in vocational orientations but in the fundamental educational functions of teaching the young to read, write, compute, think analytically and act responsibly as workers neighbours and community oriented citizens. Most employers are willing to point out the problems faced in work situations are not technical.27 Rather these problems are complex, interdependent and are related more to do with whether or not people are able to work with each other co-operatively and ethically. School principals have reported that this is the identical feed back they normally get from employers in Trinidad and Tobago.

Finally, however is the drive for vocationalising education linked with national economic problems, and to which extent there is hope for solutions, it seems that the vocationalising trend would be around for a long time. At this point in time it is difficult to imagine what events, changes and ideologies could alter this course.

TABLE 2. Labour Force by Sex, Employment Status and Educational Attainment

Educational attainment	(Period Round)	Six months ended	Both sexes												
					Unemployed						Each educational attainment as a proportion of total all education				
			Total labour force (2) + (3)	Persons with jobs	Total unemployed (4) + (5)	Persons without jobs and seeking work	Other unemployed	Unemployed as a % of labour force	Persons with jobs plus persons without jobs and seeking work	Persons without jobs and seeking work as a % of col. (7)	Labour force	Persons with jobs	Persons with jobs plus persons without jobs and seeking work	Total unemployed	Persons without jobs and seeking work
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Total all education	38	31.12.82	447 000	404 400	42 700	22 400	20 300	10	426 700	5	100	100	100	100	100
	39	30. 6.83	442 400	393 300	49 100	27 300	21 800	11	420 600	6	100	100	100	100	100
	40	31.12.83	456 400	405 500	50 900	32 100	18 800	11	437 600	7	100	100	100	100	100
	41	30. 6.84	470 900	410 600	60 400	37 300	23 000	13	447 900	8	100	100	100	100	100
No education	38	31.12.82	7 900	6 700	1 200	500	700	15	7 200	7	2	2	2	3	2
	39	30. 6.83	7 600	7 400	300	200	100	3	7 500	2	2	2	2	1	1
	40	31.12.83	6 000	5 700	300	100	300	6	5 800	1	1	1	1	1	–
	41	30. 6.84	8 100	7 800	300	200	200	4	8 000	2	2	2	2	1	–
Kindergarten	38	31.12.82	1 800	1 400	400	200	200	23	1 700	15	–	–	–	1	1
	39	30. 6.83	2 300	2 200	100	100	–	4	2 300	4	1	1	1	–	–
	40	31.12.83	3 000	2 900	100	100	–	3	3 000	3	1	1	1	–	–
	41	30. 6.84	2 800	2 600	200	200	–	6	2 800	6	1	1	1	–	–
Standard 1 – 2	38	31.12.82	10 200	9 600	600	200	400	6	9 800	2	2	2	2	1	1
	39	30. 6.83	9 000	7 900	1 000	600	400	11	8 500	7	2	2	2	2	2
	40	31.12.83	10 200	8 900	1 300	1 300	100	13	10 100	12	2	2	2	3	4
	41	30. 6.84	13 100	11 400	1 700	1 100	600	13	12 500	9	3	3	3	3	3
Standard 3 – 5	38	31.12.82	68 900	61 500	7 400	3 400	4 000	11	64 900	5	15	15	15	17	15
	39	30. 6.83	71 600	63 300	8 300	5 600	2 700	12	68 900	8	16	16	16	17	20
	40	31.12.83	71 500	63 900	7 600	4 400	3 300	11	68 300	6	16	16	16	15	14
	41	30. 6.84	65 900	57 900	8 000	5 000	2 900	12	63 000	8	14	14	14	13	13
Standard 6 – 7	38	31.12.82	175 800	159 800	16 000	8 800	7 100	9	168 700	5	39	40	40	37	40
	39	30. 6.83	171 500	152 300	19 200	10 800	8 400	11	163 100	7	39	39	39	39	40
	40	31.12.83	171 000	152 300	18 300	11 700	6 500	11	164 100	7	37	38	37	36	37
	41	30. 6.84	176 700	154 300	22 400	13 600	8 800	13	167 900	8	38	38	37	37	36
Secondary (School Certificate not obtained)	38	31.12.82	124 300	108 700	15 700	7 900	7 800	13	116 500	7	28	27	27	37	35
	39	30. 6.83	125 900	107 500	18 400	8 900	10 000	15	116 400	8	28	27	28	38	32
	40	31.12.83	140 500	119 800	20 700	13 300	7 400	15	133 200	10	31	30	30	41	42
	41	30. 6.84	152 100	127 600	24 500	15 000	9 500	16	142 600	11	32	31	32	41	40
Secondary (School Certificate obtained)*	38	31.12.82	42 700	41 600	1 100	1 000	100	3	42 600	2	10	10	10	3	4
	39	30. 6.83	39 200	37 900	1 300	900	300	3	38 800	2	9	10	9	3	3
	40	31.12.83	39 900	37 900	2 000	900	1 100	5	38 800	2	9	9	9	4	3
	41	30. 6.84	39 000	36 500	2 400	1 400	1 000	6	38 000	4	8	9	8	4	4
University	38	31.12.82	11 800	11 500	300	200	100	3	11 700	2	3	3	3	1	1
	39	30. 6.83	12 400	12 300	200	200	–	1	12 400	1	3	3	3	–	1
	40	31.12.83	12 200	11 900	300	300	100	3	12 200	2	3	3	3	1	1
	41	30. 6.84	11 700	10 900	800	700	100	6	11 600	6	2	3	3	1	2
Educated in a foreign country	38	31.12.82	700	700	–	–	–	–	700	–	–	–	–	–	–
	39	30. 6.83	1 100	900	200	–	200	15	900	–	–	–	–	–	–
	40	31.12.83	1 200	1 000	200	100	100	14	1 100	8	–	–	–	–	–
	41	30. 6.84	900	800	200	200	–	18	900	18	–	–	–	–	–
Other	41	30. 6.84	500	500	–	–	–	–	500	–	–	–	–	–	–
Not stated	41	30. 6.84	300	300	–	–	–	–	300	–	–	–	–	–	–

*Includes Higher School Certificate and G.C.E 'A' Level (any number).

TABLE 3. LABOUR FORCE BY EMPLOYMENT STATUS, SEX AND OCCUPATIONAL GROUP

Occupational group	Period Round	Six months ended	Both sexes												
			Labour force					Unemployed as a % of labour force	Persons with jobs *plus* persons without jobs and seeking work	Persons without jobs and seeking work as a % of Col. (7)	Proportions (%) of:				
			Total labour force	Persons with jobs	Unemployed						Labour force	Persons with jobs	Persons with jobs *plus* persons without jobs and seeking work	Total unemployed	Persons without jobs and seeking work
					Total unemployed	Persons without jobs and seeking work	Other unemployed								
			(2)+(3)		(4)+(5)				(2)+(4)	(4)÷(7)	(1)	(2)	(7)	(3)	(4)
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Total all occupations	38	31.12.82	447 000	404 400	42 700	22 400	20 300	10	426 700	5	100	100	100	100	100
	39	30. 6.83	442 400	393 300	49 100	27 300	21 800	11	420 600	6	100	100	100	100	100
	40	31.12.83	456 400	405 500	50 900	32 100	18 800	11	437 600	7	100	100	100	100	100
	41	30. 6.84	470 900	410 600	60 400	37 300	23 000	13	447 900	8	100	100	100	100	100
Professional and technical worker	38	31.12.82	40 200	39 700	500	200	300	1	39 900	–	9	10	9	1	1
	39	30. 6.83	38 200	37 500	800	500	300	2	38 000	1	9	10	9	2	2
	40	31.12.83	37 600	36 600	900	600	300	2	37 200	2	8	9	8	2	2
	41	30. 6.84	35 700	34 400	1 300	1 000	300	4	35 500	3	8	8	8	2	3
Administrative, executive, managerial and clerical worker	38	31.12.82	63 000	60 000	3 000	2 000	1 000	5	62 000	3	14	15	15	7	9
	39	30. 6.83	61 500	56 700	4 700	2 800	1 900	8	59 500	5	14	14	14	10	10
	40	31.12.83	60 800	56 400	4 400	2 400	1 900	7	58 800	4	13	14	13	9	8
	41	30. 6.84	64 000	58 400	5 600	3 000	2 600	9	61 400	5	14	14	14	9	8
Commercial, financial and insurance worker	38	31.12.82	43 600	40 900	2 700	1 200	1 500	6	42 100	3	10	10	10	6	5
	39	30. 6.83	46 400	44 200	2 200	800	1 400	5	45 000	2	10	11	11	4	3
	40	31.12.83	50 800	47 600	3 200	1 600	1 600	6	49 200	3	11	12	11	6	5
	41	30. 6.84	54 000	49 700	4 400	2 200	2 200	8	51 900	4	11	12	12	7	6
Farmer, fisherman, hunter, logger and forest worker	38	31.12.82	31 800	29 900	1 900	700	1 200	6	30 600	2	7	7	7	4	2
	39	30. 6.83	34 900	33 700	1 300	500	800	4	34 200	1	8	9	8	3	2
	40	31.12.83	34 700	32 900	1 800	1 100	800	5	34 000	3	8	8	8	4	3
	41	30. 6.84	38 300	36 300	1 900	1 300	600	5	37 700	4	8	9	8	3	4
Craftsman, production process worker including worker in mining and quarrying	38	31.12.82	91 800	86 600	5 100	2 900	2 200	6	89 500	3	21	21	21	12	13
	39	30. 6.83	91 000	85 100	5 900	4 700	1 300	6	89 700	5	21	22	21	12	17
	40	31.12.83	96 000	90 200	5 800	3 900	1 900	6	94 000	4	21	22	21	11	12
	41	30. 6.84	101 900	93 600	8 300	5 600	2 700	8	99 200	6	22	23	22	14	15
Worker in transport and communication	38	31.12.82	27 200	26 100	1 100	600	500	4	26 700	2	6	6	6	3	3
	39	30. 6.83	25 700	24 100	1 600	1 300	300	6	25 400	5	6	6	6	3	5
	40	31.12.83	28 200	27 300	900	900		3	28 200	3	6	7	6	2	3
	41	30. 6.84	30 800	28 700	2 000	1 200	800	7	29 900	4	7	7	7	3	3
Worker in construction and labour n.e.c.	38	31.12.82	88 500	69 200	19 300	11 000	8 400	22	80 200	14	20	17	19	45	49
	39	30. 6.83	81 300	60 000	21 300	12 200	9 100	26	72 100	17	18	15	17	43	45
	40	31.12.83	84 300	63 300	21 100	13 800	7 300	25	77 000	18	18	16	18	41	43
	41	30. 6.84	80 600	57 100	23 600	16 100	7 500	29	73 200	22	17	14	16	39	43
Service worker	38	31.12.82	55 300	51 500	3 800	2 000	1 800	7	53 500	4	12	13	13	9	9
	39	30. 6.83	57 500	51 800	5 800	2 400	3 400	10	54 100	4	13	13	13	12	9
	40	31.12.83	55 800	50 800	5 000	3 100	1 900	9	53 900	6	12	13	12	10	10
	41	30. 6.84	57 400	52 300	5 100	2 500	2 600	9	54 800	5	12	13	12	8	7
Never worked	38	31.12.82	4 800		4 800	1 800	3 000	100	1 800	100	1	.	–	11	8
	39	30. 6.83	4 900		4 900	2 000	2 900	100	2 000	100	1	.	–	10	7
	40	31.12.83	7 400		7 400	4 600	2 800	100	4 600	100	2	.	1	14	14
	41	30. 6.84	7 900		7 900	4 300	3 600	100	4 300	100	2	.	1	13	11
Not stated	38	31.12.82	800	400	400	100	300	50	500	17	–	–	–	1	–
	39	30. 6.83	1 000	300	700	300	400	67	600	43	–	–	–	1	1
	40	31.12.83	800	400	400	200	300	50	600	29	–	–	–	1	1
	41	30. 6.84	300		300	100	300	100	100	100	–	–	–	1	–

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